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SYSTEM TEST (ST) PROCESS

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John McNulty, Jr. Date
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Systems

System Test (ST) Process Instruction

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1. Introduction. This instruction supports the National Weather Service (NWS) Policy Directive, 30-3, *Operational Systems, Test and Evaluation*. This instruction establishes the process the Office of Operational Systems (OPS), Field Systems Operations Center (FSOC), Test and Evaluation Branch (OPS24) will follow for the development, conduct, and reporting of a system test (ST).

1.1 Definitions. The following sections are definitions for System Test (ST) and Test Bed.

1.1.1 System Test. An ST is a formal evaluation of a modification to, or replacement of, an NWS major operational system in a simulated NWS field operations environment (see Section 2.1, Major Operational Systems). Specifically, an ST validates system functions, performance, reliability and availability, and system operation and maintenance support documentation for new systems as appropriate. A successful ST is a prerequisite for the conduct of a field test leading to national deployment. The ST is performed after a successful system integration test by the developer and when the NWS program management determines life cycle support mechanisms (e.g., logistics, training, and maintenance) are in place for the new system or system modification to operate in an NWS field test environment. Draft support documentation will be available for the ST.

1.1.2 Test Bed. The term "test bed" is used in this instruction to designate a system configured for explicit use to conduct an ST. The test bed is comprised of system hardware, software, and communication interfaces configured with the latest upgrades for testing. The system upgrades will be installed and certified by the developer at the successful conclusion of a system integration test or follow-on software and hardware validation tests. The number of test beds required for an ST is determined by the major configurations in field operations affected by the change(s). Resources dictate whether all system configurations can be replicated as a test bed. However, at a minimum, the most common configurations are identified and setup in the test bed. Those configurations that cannot be replicated in a test bed are included during the field test. During an ST, no system changes are allowed without approval by the System Test Director (see Section 3.2).

2. Scope. An ST is performed for all hardware and OOS developed software modifications to or replacement of NWS major operational systems.

2.1 Major Operational Systems. Major NWS systems are used for the collection, processing, dissemination, or distribution of Weather/Climate/Hydrologic data and service under the management of the Director, Office of OPS. (It may also be applied to related systems procured and operated/maintained by NWS for other Federal agencies.) Nominally, OPS24 performs an ST for:

a. Surface Observing Systems. The Automated Surface Observing System (ASOS) Planned Product Improvements and software enhancements.

b. Upper Air Observing System. The Radiosonde Replacement System for the current operational MicroART system.

c. NOAA Weather Radio (NWR). The NWR Console Replacement System (CRS)/Voice Improvement Processor and transmitters.

d. Miscellaneous. As assigned by the Director, OPS.

2.2 Systems Excluded. Specific systems excluded from this instruction are those observing, processing, and dissemination systems that include:

a. Advanced Weather Interactive Processing System. - The system acceptance tests are the responsibility of the Office of Science and Technology (OST). A system Program Management Responsibility Transfer plan must be coordinated and approved between OST and OPS before any ST responsibility is accepted by OPS24.

b. Weather Surveillance Radar (WSR)- 1988 Doppler. - The OPS Radar Operations Center (ROC) is responsible for system acceptance tests related to hardware and software changes to the worldwide network of DOC, Department of Defense, and Department of Transportation Next Generation Doppler Weather Radars.

c. Ocean Data Buoy Sensors. The OPS National Data Buoy Center is responsible for system acceptance tests related to modifications to or replacement to the network of ocean data buoy sensors under NDBC's management.

3. Roles and Responsibilities. Authorization for OPS24 to undertake an ST for the major systems identified in section 2.1 is through the Configuration Management process. The following sections document the major authorities for managing the ST.

3.1 Configuration Control Board. The System Program Manager for a major system is the chair of a Configuration Control Board (CCB). The CCB approves changes to the system. A CCB- approved Engineering Change Request (ECR) will stipulate successful system and field tests as a condition for national deployment of the change. The CCB is the final approval authority on recommendations it receives on the ST from the Test Review Group (TRG) (see Section 3.3).

3.2 System Test Director. The OPS24 System Test Group Leader or their designee is the System Test Director for all STs. The System Test Director manages the development and coordination of the test plan, the conduct of the test, chairs the TRG, and manages the development and coordination of the test report documenting the test results, conclusion, and recommendation. The System Test Director organizes and manages the formal Test Team (see Section 3.4). The System Test Director reports to the CCB through the system program

manager.

3.3 TRG. The TRG for an ST is established as an independent body to oversee the test and reports to the CCB. The TRG consists of technical and service operations experts within NWS National and regional headquarters and a representative from the NWS Employee Organization (NWSEO). The ST Director serves as a non-voting chair of the TRG. The ST Director is the Chief, OPS24, or designee. The NWSEO representative and each national and regional headquarters office representative will have one vote. The TRG reviews all test results, prioritizes deficiencies found during the test, and recommends whether to proceed to field test at the conclusion of the ST. The TRG is authorized to suspend and resume the ST. TRG decisions will be based on a consensus vote. A TRG recommendation whether to proceed to field test is presented to the CCB. The CCB decides on field test commencement. If a TRG consensus cannot be reached, the issue will be raised to the CCB for resolution. If the CCB cannot resolve the issue, then, the PMC will decide.

3.4 Test Team. The Test Team will be comprised of personnel from the OPS24 System Test Group with support from designated personnel in the OPS24 Operational Acceptance Test Group who are responsible for the field test once a successful ST is achieved. The test team develops the test plan and specific test procedures, documents and tracks deficiencies, coordinates and documents minutes of TRG meetings, ensures appropriate technical experts analyze the test results, and develops the test report. The OPS24 System Test Group may solicit support from other organizations within NWS National Headquarters including National Centers for Environmental Prediction (NCEP), regional headquarters, field sites, and a representative from the NWSEO, as required, to serve on the Test Team.

3.5 National Headquarters Test Support. The NWS National Headquarters organization(s) responsible for the software and hardware system changes provide the System Test Director at the commencement of the ST with all requisite system components and associated Version Description Documents (VDD), as well as draft installation procedures. The appropriate operations support and maintenance organizations provide draft operations user and hardware maintenance documentation, respectively, for the system under test (see Section 4.1).

3.6 NCEP Test Support. The ST Director will solicit the NCEP Test Support when it is necessary to validate system changes affecting NCEP communication systems and data processes.

3.7 Regional Headquarters Test Support. As required, the NWS regional headquarters system operations personnel, meteorological and hydrologic services division personnel coordinate with any field office support required during the ST.

3.8 Field Office Test Support. The System Test Director may solicit field personnel to participate in the ST through the appropriate NWS regional focal points to validate system functions and performance using the system to simulate field operations. The field experts also use and review draft operations and maintenance documentation provided by the responsible National headquarters offices.

3.9 NWSEO Test Support. Since system changes might affect working conditions at NWS operational field sites, NWSEO representation is important during the ST to provide a perspective on any negative aspects of the changes.

4. System Test Process. The following section describes the ST process including test commencement, conduct, and test conclusion. This is the process the System Test Director follows for every test the CCB authorizes.

4.1 Test Commencement. The ST begins with the System Test Director convening the TRG and conducting a Test Readiness Review. The prerequisites for beginning the test and the conduct of the Test Readiness Review are as follows:

4.1.1 Prerequisites. Requirements for draft documentation and system hardware/software maturity to proceed with ST are as follows:

a. A successful Systems Integration Test (SIT) by the system hardware/software developer - No critical problems are left unresolved during the SIT. The CCB reviews the test results of the SIT and decides whether critical problems are all resolved. The system must be stable (i.e., ability of the system to stay in operational mode). Any problems and workarounds found during the SIT will be documented in the VDD and provided to the System Test Director.

b. Hardware and software certification - The system hardware/software developers must certify all hardware and software components delivered for the ST have no critical problems. A VDD is delivered for the hardware and software.

c. Initial Issue Field Modification Kit (FMK) for the new system or system component available at the National Logistic and Supply Center (NLSC), Kansas City, MO – An initial issue FMK is required at NLSC for ordering at the beginning of the ST. If this cannot be setup ahead of time, the System Program Manager ensures the FMK and draft installation procedures are available for the Test Team.

d. Draft system documents - Documentation includes affected updates to the NWS engineering handbooks, user/operator manuals, system administration manuals, maintenance manuals, release notes, and installation instructions.

e. Training - Appropriate operations and maintenance training is provided for all test support personnel on the System Test Team for new systems and as appropriate for changes to existing systems.

f. System test documents - Documentation includes an ST plan with associated test procedures (see Sections 4.2.3 and 6.1).

4.1.2 Test Readiness Review. The test readiness review meeting convenes the developers, hardware and software experts, and NWS regional headquarters focal points to review all the prerequisites for commencing the ST. The System Test Director provides a checklist of items

required (see Appendix A, Example - Test Readiness Review Checklist). Each author presents the status of the material. Once the materials are collected and discussed, the System Test Director gets a consensus decision from the TRG, to begin the ST.

4.2 Test Conduct. The System Test Plan is coordinated for signature of the OPS24 Branch Chief in advance of the Test Readiness Review meeting. OPS24 distributes the System Test Plan to the team and the TRG at least 2 weeks before the start of the test. The test is conducted as outlined in the test plan (see section 6.1) and begins with the system hardware installation using the draft engineering installation field kit and accompanying installation procedures with support from other development organizations. The software installation is performed by the Test Team using draft software installation procedures. A stability test is required as part of the ST. During this period, the test system is used in a simulated operations mode to validate the system can operate without catastrophic failure. All tests defined for the ST must be completed; deficiencies must be documented and presented to the TRG on a weekly basis for impact and priority ranking and tracked for record keeping; and the results are reported to the TRG at the test conclusion and documented in the ST report (see Section 6.2). After all specific and regression test procedures are successfully completed, a second phase of test may be conducted where the test system is used as if operational for a period of 30 days to verify the system performance, reliability, and communications throughput availability.

4.2.1 Purpose and Objectives. The purpose of the ST is to verify under simulated NWS operations, the system under test functions according to specifications, is reliable, and all associated documentation required to operate and maintain the system is verified prior to the conduct of a field test. Specific test objectives are stated in the test plan and used to measure the readiness of the system to start a formal field test.

4.2.2 Evaluation Criteria. Evaluation criteria for the test objectives are developed by OPS24 test personnel in coordination with the technical experts from NWS Headquarters as appropriate. The criteria are based on the system functions specifications and requirements documents. The draft documentation is evaluated on how useable they are to perform operations and maintenance tasks.

4.2.3 Test Procedures. Test procedures or scenarios are formulated by the Test Team to correspond with each function of the system under test. There are three categories of test scenarios: 1) System; 2) Communication, and 3) Operations. There are two classes of test cases under each test procedure: 1) Specific tests address a new capability or fix; and 2) Regression tests for existing functions to ensure the changes have not negatively affected them. Test procedures are written as a step-by-step methodical instruction the tester follows to verify the outcomes of performing a function work according to the functional specifications (see Appendix D, Test Procedure Form). The test procedure contains a cover sheet with a description of the test scenario, the purpose, the objectives, and the success criteria. The procedure also includes a step-by-step instruction providing the tester a path to accomplish the test scenario, what the expected outcome is for each step, and check-off if the step completed achieves the expected outcome. A comment column allows the tester to add notes as the procedure is completed. Whenever a test is conducted, the test procedures are evaluated by the tester to how effective it is in obtaining the desired outcome. The procedure may be annotated for future improvements as a result of actual use in a test. The comment column may also be used to

annotate system requirements tested by the procedure and to note any specific Test Trouble Report (TTR) number the procedure validates.

4.2.4 Methodology. The strategy for how the ST is performed is documented in the System Test Plan (see section 6.1, System Test Plan). This methodology ensures all new functions are validated and regression tests are performed to evaluate the overall system performance during normal and backup simulated operations using the system. During this test, draft installation instructions, operations, and maintenance documentation are used and evaluated in the performance of system operations and maintenance.

4.2.5 Reporting. All deficiencies are documented on as a TTR (see Appendix E, Example - Test Trouble Report) and supporting data collected to support documentation of the deficiency for developers to analyze. Weekly TRG meetings will be convened to present and classify the deficiencies. Minutes of each meeting will be generated within 48 hours of the meeting. All TTRs are classified as follows:

a. *Critical* (Impact 1: system failure; no workaround) - A repeatable problem preventing the operator from performing service operations using the system. No workaround exists.

ACTION: The TRG recommends suspension of the test to the System Program Manager. If suspended, the test resumes when the System Program Manger approves a proposed corrective action. When the corrective action is completed, regression tests might be authorized by the TRG.

b. *Urgent* (Impact 2: system failure; workaround) - A repeatable problem preventing the operator from performing service operations using the system, but an acceptable workaround exists until the problem can be corrected.

ACTION: The ST continues with the approved workaround until a permanent fix is available. When a fix becomes available, the System Program Manager approves the fix for implementation. The TRG may authorize retest of areas affected by the problem.

c. *Routine* (Impact 3: degradation of system capability) - A repeatable minor problem that does not prevent the operator from performing service operations using the system.

ACTION: The ST continues. An approved workaround may be authorized until the problem is fixed, but it is not mandatory. Routine deficiencies are documented and prioritized by the proper authority for future fixes.

d. *Minor* (Impact 4: loss of minor capability) - A random problem with minor effect on using the system to perform service operations.

ACTION: The TRG monitors test activities for recurrence of the problem. If the problem occurs again, the problem is documented by the test team and the TRG re-categorizes the problem.

e. *Potential Enhancement* (Impact 5: no impact/nice to have) - The problem is identified by the TRG as a new requirement.

ACTION: The TRG forwards the deficiency to the System Program Manager for prioritizing development of a fix in the future by the CCB or the CCB's designated authority such as a working group. This deficiency is initiated as an ECR under the Configuration Management process.

4.3 Test Conclusion. At the end of the ST, all remaining TTRs are adjudicated by the TRG and the Test Director presents a summary of whether the test objectives were met. All test objectives in the test plan must be satisfactorily met and no Impact 1 or 2 existing. Deficiencies may exist at the conclusion of the ST, but a suitable workaround must be authorized by the TRG to proceed to a field test. Also, all draft documentation (e.g., installation, operations, system administration, support, and maintenance) provided must have been reviewed and deemed by the TRG as acceptable for use in a field test. If the TRG agrees with the results presented, a recommendation whether to commence the field test is made to the CCB or the CCB's designated authority such as a working group. A Test Report documents all test results, conclusions, and recommendations (see section 6.2).

5. Tools. Specific test tools should be implemented to manage the test projects. The test organization responsible for all STs will obtain the proper and most efficient tools or find a venue to ensure the best means to store documents, analyze test data, and disseminate test information.

5.1 Test Archive. To meet Government standards for archival of official documents, all documents related to a specific test are archived for the length of time established by the agency. Both hard and soft copies of the documents are kept. A mechanism will be established to store test materials for record keeping and reference. Both hard and soft copies are archived of all test plans, test case procedures, data results and analyses, TRG minutes, and reports along with other supporting records of the test.

5.1.1 Hard Copy. A Technical Reference Library will be established to store any hard copy of official test documents and relevant test data and correspondence.

5.1.2 Soft Copy. Shared Disk Drive Server will be established to store all soft copy of official test documents and relevant test data and correspondence.

5.2 Deficiency Status Tracking and Archive. A test tool will be used to create, update, provide status updates, and archive deficiency reports documented during the test.

5.3 Data Analyses. If applicable, a tool should be implemented to automatically collect, collate, statistically analyze, and provide a report of the statistics for data product throughput on communication networks [e.g., Product Availability and Monitoring System (PAMS)].

5.4 Dissemination. A tool will be implemented to disseminate all test-related information in an efficient and timely manner. Preferred dissemination tools include electronic mail (e-mail)

and the use of web pages to post test documents for ease of access.

6. Documentation. Two major documents are required for each ST: 1) A System Test Plan; and, 2) A System Test Report. These documents serve as the official records of each test conducted.

6.1 System Test Plan. The System Test Plan (see Appendix B, Example - System Test Plan Outline) will include an introduction and background, purpose and test objectives, the evaluation criteria for each test objective, test system configurations, test materials, test methodology, deficiency adjudication, test focal points, and contact information. The test plan will include as appendices all test procedures and a Test Trouble Report form. The System Test Plan will be signed by the Chief, OPS24. An initial draft will be created and distributed for review within the test organization. A revised draft will then be sent to technical experts within the NWS National Headquarters and the NWS regional headquarters comprising the TRG. Once their comments are incorporated, the document will be forwarded for signature, and made available on the OPS24 webpage.

6.2 System Test Report. The System Test Report will include a purpose, introduction, test objectives, a description of how the test was conducted, a summary of the tests results including a listing of all TTRs, the test conclusion, and recommendation (see Appendix C, Example - System Test Report Outline). If needed, a section will be added to the report describing any follow-on ST required as a result of problems found in the original ST. The System Test Report will be signed by the Chief, OPS24. An initial draft will be created and distributed for review within the test organization. A revised draft will then be sent to technical experts within NWS National Headquarters and the NWS regional headquarters comprising the TRG. Once their comments are incorporated, the document will be forwarded for signature, and made available on the OPS24 webpage.

Appendix A - Example – Test Readiness Review Checklist

The purpose of this checklist is to document that the various hardware subsystems and software are functioning, and all required documentation is available to support the System Test. System Test is scheduled to begin **MO/DAY/YR**. The items below are required to be completed by **MO/DAY/YR**.

Entries should be made below to identify hardware serial number(s), firmware versions, Version Description Documents (VDD), test procedures, etc. required to identify the equipment configuration to be tested. COTRs and their Branch Chiefs need to certify that the subsystems have been checked out and ready for ST. The RRS Project Manager will certify that the System is ready to be turned over to the System Test Director.

1.0 Hardware: Branch Chief (ORG code) (Name) _____ Date: _____

1.1 TRS (System 6) TRS (System 7)
Hardware: (Serial No.) _____ Hardware: (Serial No.) _____
Firmware: (Version No.) _____ Firmware: (Version No.) _____
VDD: (Attachment?) (Y/N) _____ Date: _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

1.2 SPS (System 6) SPS (System7)
Hardware: (Serial No.) _____ Hardware: (Serial No.) _____
Firmware: (Version No.) _____ Firmware: (Version No.) _____
VDD: (Attachment?) (Y/N) _____ Date: _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

1.3 GPS Repeater (Building 16)
Hardware: (Serial No.) _____ Hardware: (Serial No.) _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

1.4 SPS Base Antenna (System 6) SPS Base Antenna (System 7)
Hardware: (Serial No.) _____ Hardware: (Serial No.) _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

1.5 RSOIS (System 7)
Hardware: (Serial No.) _____ Hardware: (Serial No.) _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

1.6 Workstation (System 6) Workstation (System7)
Hardware: (Serial No.) _____ Hardware: (Serial No.) _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

1.7 Radiosondes (100 available)
CONEXANT GPS Module: (Serial No.) _____
NAVMAN GPS Module: (Serial No.) _____
COTR: (Signature) _____ Date: _____

1.8 PDB (System 7)
Hardware: (Serial No.) _____
Checkout Procedure: (Attached?) (Y/N) _____ Date: _____
COTR: (Signature) _____ Date: _____

2.0 Tool Kit: Branch Chief (Org. Code) (Name) _____ Date: _____

POC: (Signature) _____ Date: _____

3.0 Software: Branch Chief (Org. Code) (Name) _____ Date: _____

RWS Application SW: (Version No.) _____ VDD: (Attached?) (Y/N) ___ Date: _____
Support Software: (Version No.) _____ VDD: (Attached?) (Y/N) ___ Date: _____
All Deliverable Media (e.g., CDs) (Attached?) (Y/N) ___ Date: _____
COTR: (Signature) _____ Date: _____

4.0 Documentation

4.1 EHB-1 Updates: Branch Chief (Org. Code) (Name) _____ Date: _____
Manual: (Attached?) (Y/N) ___ Web Address: _____ Date: _____
(Signature) _____ Date: _____

4.2 EHB-4, EMRS Updates: Branch Chief (Org. Code) (Name) _____ Date:_____
Manual: (Attached?) (Y/N) ___ Web Address: _____ Date: _____
(Signature) _____ Date: _____

4.3 EHB-9, Technical Manual: Branch Chief (Org. Code) (Name) _____ Date: _____
Manual: (Attached?) (Y/N) ___ Web Address: _____ Date: _____
(Signature) _____ Date: _____

4.4 RRS Operator Training Guide: Branch Chief (Org. Code) (Name) _____ Date: _____
Manual: (Attached?) (Y/N) ___ Web Address: _____ Date: _____
(Signature) _____ Date: _____

4.5 WSOH-10, Rawinsonde Observations: Branch Chief (Org. Code) (Name) ____ Date: __
Manual: (Attached?) (Y/N) ___ Web Address: _____ Date: _____
(Signature) _____ Date: _____

5.0 RRS Systems 6 and 7 installed, certified, and ready for ST IA.

System Project Manager (Org. Code)
(Signature) _____ Date: _____

Appendix B - Example - System Test Plan Outline

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Appendix D - Example - Test Procedure

TEST #430c Maximum Winds 132kts Overall Outcome: Pass [ ] Fail [ ]

TESTED BY: _____ DATE: _____ ITERATION: ____ Time Start: _____ Time End: _____

The purpose of this test is to verify RWS can detect the same anomalous weather conditions (defined in Federal Meteorological Handbook No.3) as the legacy system. This test will be conducted using the External Data Pump (XDP) to run data set (**1006.mal**) containing known problem/condition, maximum winds 132Kts, from real radiosonde flights collected by OPS22 personnel. OPS22 assistance may be required to identify specific condition. It is estimated 1 ½ hours will be required to accomplish.

Step	Action	Expected Results	Comments	Pass/Fail	
1	Start XDP. Click **Setup/configure** button.	Step 1-Administrative Data Entry window opens.			
2	Select **Sippican GPS (87)** for Radiosonde Type, **As-is** for Simulation and click **Next.**	Parameters updated.	**Make sure that the 'Balloon Release sends an Event Marker from SPS' option is turned OFF.**		
3	In the Configuration Data Entry window, click Browse button. Double click on ***:\AtmosphenomDataCat on 10.201..*** Double click on **1006** folder, select ***XDP-1006.mal*** and click **Open** button.	Step 2-Configuration Data Entry window is displayed. *X:\1006\XDP-1006.mal* is displayed in the *All in* field.			

Step	Action	Expected Results	Comments	Pass/Fail	
4	At the bottom of Configuration Data Entry screen, click **Browse** button and select ***Sippican.cfg*** for RPX configuration. Click **Finish** to close window.	External Data Pump for PITS window is displayed. *C:\RRSprojects\xdpPITS\Sippican.cfg* is displayed in *RPX Config* field. External Data Pump for PITS window closes.			
5	Click **Start Pump** button to start sending data to RWS.				
6	Login to **RWS** as an observer and select **Run a live flight**.	Hardware Status, Antenna Orientation/TRS Display, Administrative Display, and GPS Status windows are displayed.			
7	Run a live flight and terminate this flight at around 57 minutes.	Max winds 132kts; slant range 162 km. To verify wind speed, display the wind plot and check values at 24 minutes elapsed time			
8	Click **Flight** -> **Terminate** to terminate this flight.	Live flight is terminated.	NOTE: When flight is finished, click on the **Stop Pump** button on the **XDP** to discontinue data being sent to RWS.		
9	Click **Flight** -> **Exit** to close RWS application.				
10	End of manual procedure				

Appendix E - Example – Test Trouble Report

Radiosonde Replacement Program

Number: 2456	Date Entered: 08/09/04 Entered by: Johnson, Donald	Operation Mode: Live Flight Frequency: Always
Summary: Base flight term on elapsed time not system time		Impact: 4 - Degradation of system capabilities; no data affect
Type of Usage: System Test	Priority: 4 - Include in next major build	Type of Issue: Modification of existing function / design
Reference:		
Subsystem: RWS Application Software		
Subsys Components: Other		

Found by: Johnson, Donald Date Found: 08/09/04

Software Version:

Description:	If the system clock changes by over 3 minutes during the course of a flight, it will terminate immediately for Excessive Missing Data. Basing the termination decision on elapsed time instead will prevent this.
Capture File:	None available
Capture Filename and Date Sent:	
Location / Test Environment:	4132 Lab, ver 0.0.0.136
Attachments:	